

“LEONARDO” LD-1500 SERIES

State-Of-The-Art Radar for SAR, FPB and Professional Application

The new demands of modern navigation and patrolling require instruments with superior performances that traditional radars can not provide.

*GEM elettronica, one of the best known companies in the world for the production of **PROFESSIONAL NAVIGATION SYSTEMS**, has invested huge economical and professional resources in the realization of a new radar offering an effective response to all these needs and all professional demands of the new starting millennium.*



NEW FEATURES

- **TYPE APPROVED**  **WHEELMARK**
- **FLAT SCREEN DISPLAY SUPER TFT HIGH RESOLUTION LCD TECHNOLOGY WITH VERY WIDE VIEW ANGLE**
- **VARIABLE ANTENNA TURNING RATE, IN ORDER TO MEET ALL OPERATING SITUATIONS (OPTION)**
- **VERY WIDE SELECTION OF RANGE SCALES STARTING FROM 1/16 N.M.**
- **ESPECIALLY DESIGNED FOR SAR (SEARCH AND RESCUE) AND FAST PATROL BOAT APPLICATIONS**

And more...

- **FRIENDLY USER INTERFACE WITH PULL-DOWN AND POP-UP MENU**
- **SUPERB BRIGHTNESS AND CONTRAST FEATURES.**
- **TRUE MOTION**
- **MINI ARPA FACILITY OPTION**
- **RINA TYPE APPROVED FOR MARINE, INLAND AND HARBOUR NAVIGATION**



ANTENNA			
Type	Slotted waveguide array		
Polarization	Horizontal		
Beamwidth (at - 3 db)	4-foot Open	6-foot Open	7,5-foot Open
HORIZONTAL	1.8°±0.1°	1.2°±0.1°	1.1°±0.1°
VERTICAL	25°±2°	25°±2°	25°±2°
Sidelobes	4-foot Open	6-foot Open	7,5-foot Open
WITHIN 10	≤ 26 dB	≤ 26 dB	≤ 26 dB
OUTSIDE 10	≤ 28 dB	≤ 30 dB	≤ 30 dB
Gain	≥ 27 dBi	≥ 29 dBi	≥ 30 dBi
Rotation speed	22 rpm ±2 rpm (opt. 16, 22, 40 rpm)		
Wind load	100 knots relative		

RF TRANSCEIVER	
Peak power	4, 12 or 25 kW nominal
Frequency	9410 MHz ± 30 MHz

Range Scale in Nautical Miles **4 kw**

Pulse width ↓	0.0625	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	64	P.R.F. (Hz)
50 ns	Short	Short	Short	Short	Short	Short							3200
200 ns					Medium	Medium	Medium						1600
400 ns							Long	Long	Long				800
800 ns									Very long	Very long	Very long	Very long	500

Range Scale in Nautical Miles **12 kw - 25 kw**

Pulse width ↓	0.0625	0.125	0.25	0.5	0.75	1.5	3	6	12	24	48	64	72	96	P.R.F. (Hz)
80 ns	Short	Short	Short	Short	Short	Short									3200
300 ns					Medium	Medium	Medium	Medium							1600
600 ns							Long	Long	Long	Long	Long				800
1200 ns									Very long	Very long	Very long	Very long	Very long	Very long	500

Receiver type	Solid state logarithmic
Front-end module	Microwave integrated circuit
Intermediate Frequency (I.F.)	60 MHz
I.F. bandwidth	20 MHz with short and medium pulses 4 MHz with long and extralong pulses (with ± 10% tolerance)
Duplexer	Ferrite circulator with solid state limiter diode
Noise figure (overall)	4.0 dB

ENVIRONMENTAL PERFORMANCE

	Display	Scanner
High temperature	+55° C	+70° C
Low temperature	-15° C	-25° C
Humidity	Up to 95% at +35° C	

DISPLAY UNIT	
Type	LCD, Super TFT Technology, high resolution, color.
Display size (diagonal)	15,1", equivalent to 17" CRT
Video resolution	1024 x 768 pixels, 16 levels
Range scale (n. miles)	0.065 0.125 0.25 0.5 0.75 1.5 3 6 12 24 48 72 96
Ring spacing (n. miles)	0.031 0.0625 0.125 0.25 0.125 0.25 0.5 1 2 4 8 12 16
Range discrimination	± 25 meters, $\sigma = 10 \text{ m}^2$, short pulse
Range accuracy	± 6 meters or less than 0.8% of the scale in use, whichever is greater
Plot intervals	15 sec. • 30 sec. • 1 min. • 3 min. • 6 min.
Azimuth discrimination	0.1°
Bearing accuracy	± 0.5°

INTERFACES

One NMEA 0183 for fluxgate compass with sentence type: \$AAHDM, XXX. , M<CR><LF>

One NMEA 0183 for GPS/Loran with sentence type: \$AAGLL, XXXX.XX, A, YYYYY.YY, A<CR><LF>
\$AAVTG, XXX. , T, XXX. , M, XX.X, N, XX.X, K<CR><LF>
\$AARMC, XXXXXX, A, XXXX.XXX, N, YYYYY.YYY, W, XX.X, XXX. , XXXXXX, XX. , E*XX<CR><LF>
AIS 4800 BAUD

POWER REQUIREMENTS

Enclosure	Waterproofing IPX5
Input Voltage	from 20 to 40 Vdc or 115/220 Vac
Power absorption	≤ 100 W (radar of 4, 12 kW) ≤ 200 W (radar of 25 kW)

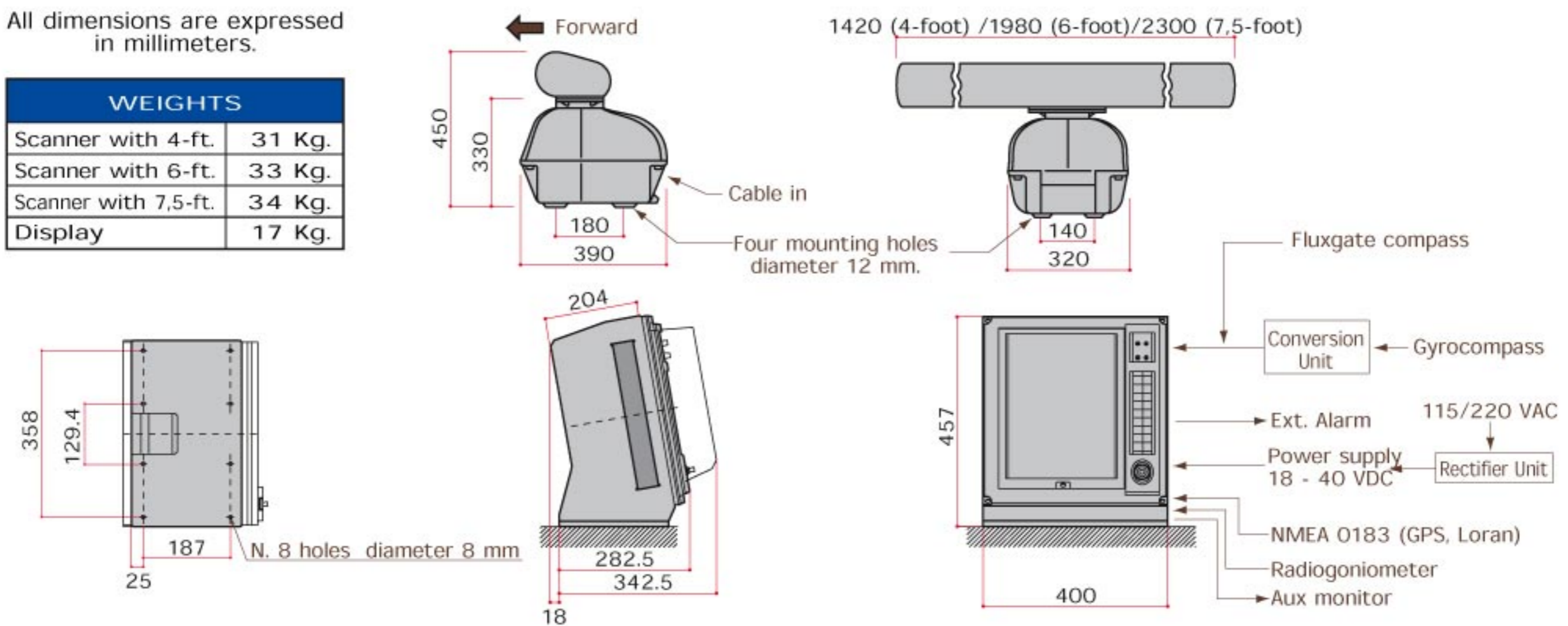
EQUIPMENT

Standard	Upmast scanner, display indicator, sun shield, 15 meters cable CB20, operation and installation manual, mounting hardware, consumable spares
Optional	- GB 20-10 Gyro interface unit - RU 40-24 Rectifier unit - RUGB 70-24 Gyro interface unit - NMEA Cable - PM 30-01 Performance monitor - External audio alarm

DIMENSIONS AND WEIGHTS

All dimensions are expressed in millimeters.

WEIGHTS	
Scanner with 4-ft.	31 Kg.
Scanner with 6-ft.	33 Kg.
Scanner with 7,5-ft.	34 Kg.
Display	17 Kg.



This brochure should not be considered a contractual offer to sell. The specifications given herein may be changed by the manufacturer, GEM Elettronica S.r.l., without notice.



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